# SERVICE MANUAL

## E17C

Mini Excavator

**Part number 48127446**
English
April 2017

NEW HOLLAND CONSTRUCTION

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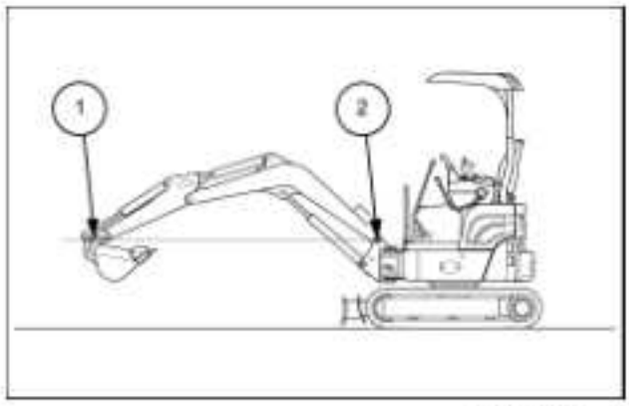
# Hydraulic systems - Test - Dig function drift

1. Measure dig function drift, which can be caused by oil leakage in the control valve and boom, standard arm, and standard bucket cylinders, with the loaded bucket.

***NOTE:*** *when testing the dig function drift just after cylinder replacement, slowly operate each cylinder to its stroke end to purge air.*

## Preparation

1. Load bucket fully. Instead of loading the bucket, weight **(W)** of the following specification can be used.
   - W = M3 x 1.5
     Where:
     M3 = Bucket heaped capacity (m3)
     1.5= Soil specific gravity
2. Position the arm cylinder with the rod **20 – 30 mm** (**0.8 – 1.2 in**) extended from the fully retracted
3. Position the bucket cylinder with the rod **20 – 30 mm** (**0.8 – 1.2 in**) mm retracted from the fully extended position.
4. With the arm rolled out and bucket rolled in, hold the bucket so that the height of the bucket pin **(1)** is the same as the boom foot pin **(2)**.
5. Keep the hydraulic oil temperature at **45 – 55 °C** (**113 – 131 °F**).




## Measurement

1. Stop the engine.
2. Five minutes after the engine has been stopped, measure the changes in the positions of the boom, arm and bucket cylinders.
3. Repeat step 2 three times and calculate the average values.

## Evaluation

The measured drift should be within the following specifications.

| Drift to be measured | Standard value | Maximum allowable |
|---|---|---|
| Boom cylinder | below **10 mm** (**0.4 in**) every **5 min** | **20 mm** (**0.8 in**) |
| Arm cylinder | below **20 mm** (**0.8 in**) every **5 min** | **30 mm** (**1.2 in**) |
| Bucket cylinder | below **20 mm** (**0.8 in**) every **5 min** | **30 mm** (**1.2 in**) |



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## Wiring harnesses - Electrical schematic sheet 09 - Horn, timer glow and fuel sensor

| Type | Components | Connectors/link | Description |
|---|---|---|---|
| Sensor | CD-2 | **CD-2** | Fuel sensor |
| Horn | CN-20 | **CN-20** | Horn |
| Solenoid | CN-79 | **CN-79** | Solenoid valve |
| Relay | CR-2 | **CR-2** | Horn relay |
| Timer glow | CR-24 | **CR-24** | Timer glow |
| Relay | CR-35 | **CR-35** | Power relay |
| Solenoid | CR-77 | **CR-77** | Timer solenoid |

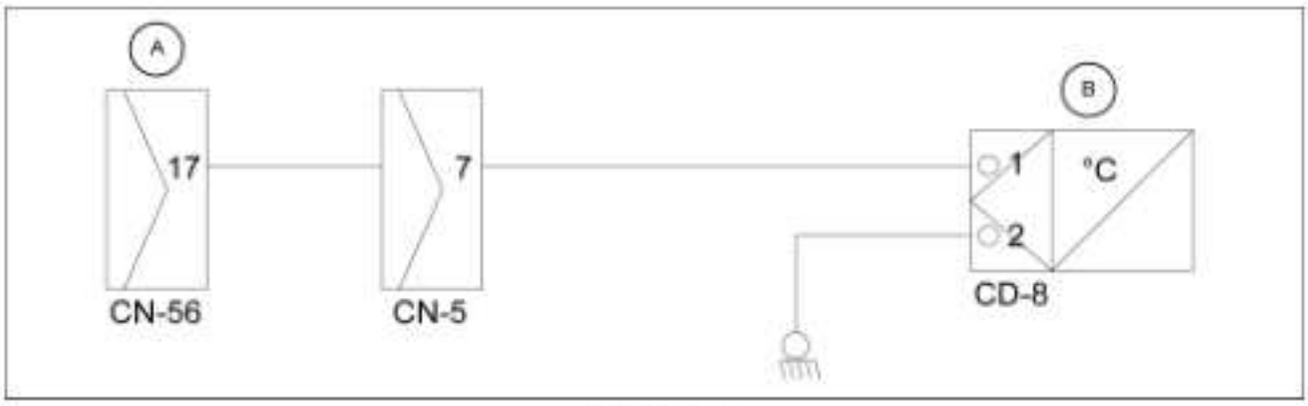


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# Instrument cluster - Service instruction - Troubleshooting

## Coolant temperature gauge malfunction

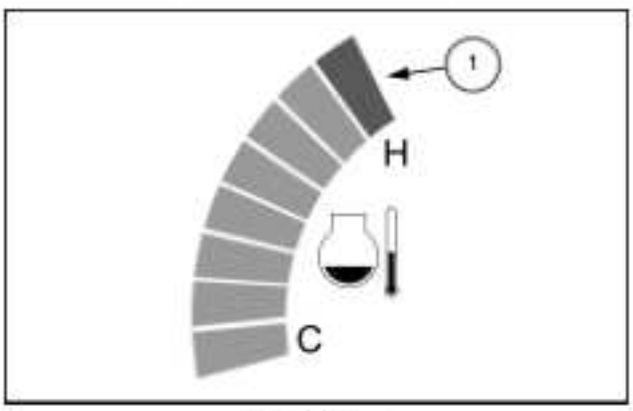
- Before disconnecting the connector, always turn OFF the starter switch.
- Before carrying out below procedure, check all the related connectors are properly inserted.
- After checking, insert the disconnected connectors again immediately unless otherwise specified.




1

A. Cluster
B. Coolant temp switch

| Temperature | 50 °C (122 °F) | 80 °C (176 °F) | 100 °C (212 °F) | 115 °C (239 °F) (1. red range) |
|---|---|---|---|---|
| Unit resistance | 350 Ω | 118 Ω | 63.5 Ω | 36.2 Ω |




2

Turn ON the starter switch.

1. Check the operative of the lamp.
   A. If the gauge moves up and down at lamp check, proceed to step 2.
   B. If the gauge does not move up and down at the lamp check, the cluster is defective. Replace it (refer to **Instrument cluster - Remove (55.408)**).

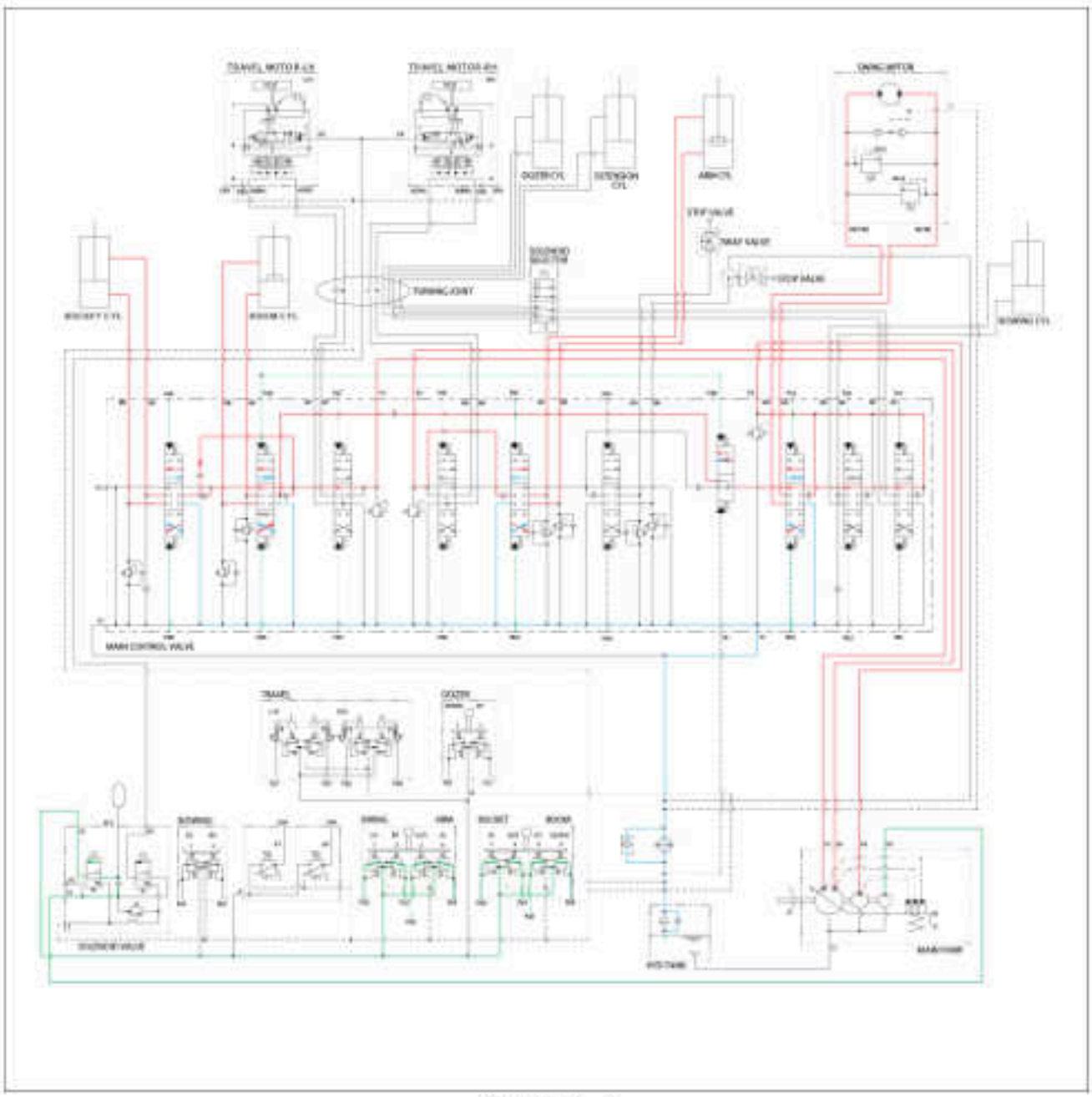
2. Turn OFF the starter switch.
   Disconnect the harness connector **CN-56** .
   Measure the resistance between terminal 17 of the connector **CN-56** and the ground.
   A. If the resistance is equal or lesser than **2 kΩ**, proceed to step 3.
   B. If the resistance is more than **2 kΩ**, there is a disconnection in the wiring harness or a poor contact between the connector **CN-56** and the connector **CD-8**. Repair or replace it, after clean.



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## Combined swing, boom, arm and bucket circuits

When the swing, boom, arm and bucket functions are operated, simultaneously each spool in the main control valve is moved to the functional position by the pilot oil pressure from the remote control valve. The oil from the P2 pump flows into the arm cylinder through, arm spool. The oil from the P1 pump flows into the boom cylinders and bucket cylinder through the boom spool, bucket spool. The oil from the P3 pump flows into the swing motor through the swing spool. The upper-structure swings and the boom, arm and bucket are operated.



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Pressure line

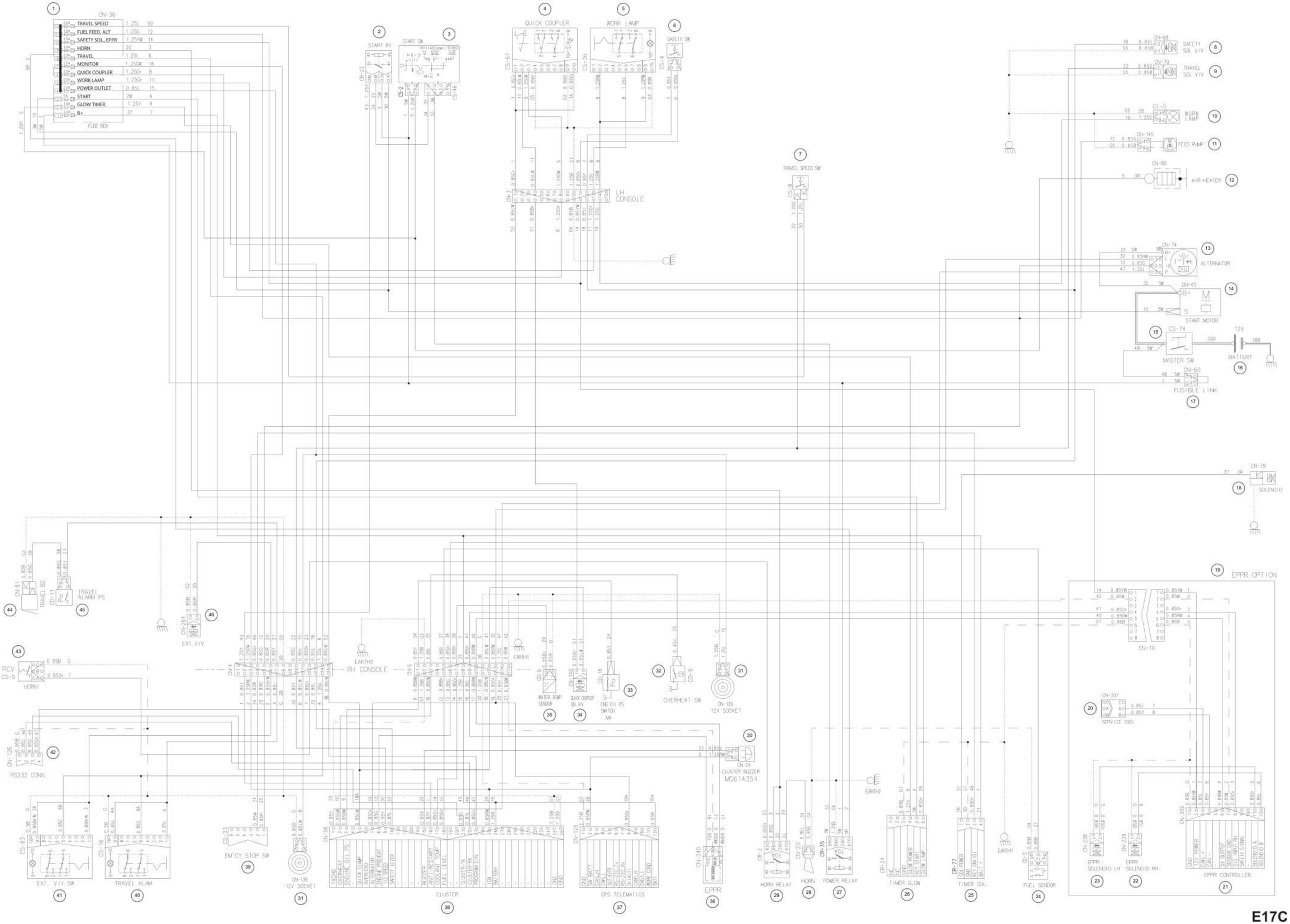
Pilot pressure line

Tank line

Secondary pilot pressure line



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**LEGEND**

1. Fuse box
2. Starter relay
3. Starter switch
4. Quick coupler switch
5. Work light switch
6. Safety switch
7. Travel speed switch
8. Safety solenoid valve
9. Travel solenoid valve
10. Work lamp
11. Feed pump
12. Air-heater
13. Alternator
14. Engine starter
15. Master switch
16. Battery
17. Fusible link
18. Solenoid
19. EPPR option
20. Service tool
21. EPPR controller
22. EPPR solenoid (right)
23. EPPR solenoid (left)
24. Fuel sensor
25. Solenoid timer
26. Glow timer
27. Power relay
28. Horn
29. Horn relay
30. Cluster buzzer
31. 12V socket
32. Overload switch
33. Engine oil pressure switch
34. Quick coupler solenoid valve
35. Coolant temperature sensor
36. EPPR
37. GPS telematics
38. Cluster
39. Emergency stop switch connector
40. Travel alarm switch
41. Extension valve switch
42. RS232 connector
43. Horn switch
44. Travel buzzer
45. Travel alarm pressure switch
46. Extension solenoid valve

# E17C EXCAVATOR ELECTRICAL SCHEMATIC

**48125606EN**



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